August 1999

U.S. Environmental Protection Agency U.S. Army Corps of Engineers
U.S. Office of Surface Mining U.S. Fish and Wildlife Service
West Virginia Division of Environmental Protection

Mountaintop Mining/Valley Fill EIS
Bulletin 2

Introduction

This bulletin is the second in a series on the preparation of an Environmental Impact Statement (EIS) on mountaintop mining and valley fill operations in the Appalachian coalfields. As announced in the *Federal Register*, the purpose of the EIS is to:

> ...consider developing agency policies, guidance, and coordinated agency decision-making processes to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States and to fish and wildlife resources from mountaintop mining operations, and to environmental resources that could be affected by the size and location of fill material in valley fill sites.

The agencies preparing the EIS are: the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (Corps), the Office of Surface Mining (OSM), and the U.S. Fish and Wildlife Service (FWS), along with the State of West Virginia Division of Environmental Protection (WVDEP). The Commonwealths of Kentucky and Virginia are participating as observers to the process, and are providing available data regarding operations within their jurisdictions. The draft EIS will be released for public comment during the summer of 2000. The final EIS is slated for completion by January 2001.

On May 26, 1999, EPA Region III sent EIS Bulletin 1 to those who registered at the EIS scoping meetings in Summersville, Charleston, or Logan, West Virginia, and to those who sent in a comment letter in response to the February 5, 1999 EIS Notice of Intent published in the Federal Register. Bulletin 1 summarized comments received during the scoping process, provided the goals which the agencies adopted for the EIS process, outlined the framework of the EIS, and announced a new opportunity for public input regarding the program review, which is central to the purpose of the EIS as described above. Bulletin 1 is available on EPA's Mountaintop Mining website at http://www.epa.gov/region03/mtntop/bulletin/bulletin.pdf.

The purpose of this Bulletin is to describe the technical studies and symposia that are being developed to address many of the issues which have been raised during the scoping process concerning mountaintop mining and valley fill impacts.

Genesis of the Technical Studies

Early in 1998, the four Federal agencies now involved in the EIS formed a work group and agreed on a series of priority areas where more information and analysis would assist them in regulating the effects of valley fills associated with mining operations. Study plans were adopted and funded for undertaking valley fill inventories in West Virginia, Kentucky, and Virginia; for assessing the stability of valley fills; and for assessing the potential for downstream flooding from these mining operations. The agencies also placed priority on studying the impacts of valley fills on aquatic habitat; on surveying and evaluating mitigation practices being employed in West Virginia and neighboring Appalachian Coalfield States; and on evaluating how to better coordinate the Federal regulatory programs. These studies were underway or in the planning stages when the *Bragg v. Robertson* settlement agreement was reached.

With the decision to prepare an EIS, the agencies brought the coordination of these technical studies under the scope of the EIS, and broadened state participation. The expanded network of agencies has now examined the studies initiated in 1998 and has modified those study plans to make them more useful for the EIS. Additional work plans responding specifically to the EIS mandate have also been drafted.

Team leaders have been selected among the participating agencies for each of the technical study areas, which are briefly described below. The team leaders' names are provided with the description of the plans, and they should be contacted to answer specific questions concerning the plans. **The work plans themselves will be made available through EPA's Mountaintop Mining website as soon as the current editing and review process is completed.** The work plans are to be considered "living documents". They reflect what the agencies believe should be studied, and are subject to revision as work progresses and new insights are gained.

Technical Study Summaries & Team Leaders

Work plans are prepared or under development on the following topics. As work products resulting from these work plans become available, they will be incorporated into the EIS as findings and/or appendices by EPA Region III's EIS contractor.

Fill Inventory: this effort to develop an inventory of all proposed post-SMCRA valley fill "footprints" has been underway since last Fall through cooperative agreements with West Virginia, Kentucky, and Virginia. Because this activity has been underway since last Fall, no new detailed work plan will be developed. The work products will provide information useful in carrying out the other technical studies described below. **Contact: William Kovacic, OSM, Kentucky Field Office (tel. 606 233-2894)**

Future Mining: to enable cumulative assessment of mining and valley fill impacts, the extent of future mountaintop mining, based on remaining coal resources, must be estimated for West Virginia, Kentucky, and Virginia. Geologic and production projection methods are proposed. **Contact: Michael Robinson, OSM, ARCC (tel. 412 937-2882)**

Fill Stability: OSM, in cooperation with the States of West Virginia, Kentucky, and Virginia, has designed a 68-permit design review, 137-fill field review (helicopter, video, and site visits), and 4-fill drilling program to assess the effectiveness of the regulations in assuring fill stability. **Contact: Peter Michael, OSM, ARCC (tel. 412 937-2867)**

Mining Reclamation and Technology: NOTE: the workshop held in June as part of this work plan is discussed in the next section of the Bulletin. Alternative mining and reclamation methods may result in differing levels of environmental impact and resource recovery. Analyzing differing mining scenarios and the attendant costs and environmental impacts is envisioned by this study. **Contact: Ken Eltschlager, OSM, ARCC (tel. 812 937-2169)**

Flooding Potential: if State matching funds are obtained, a new study of the impact of mining and fills on the hydrologic balance will be undertaken. OSM and the COE collaborated beginning in October 1998 on a surface water modeling effort to estimate peak stream flows and levels (pre- and post-mining) at three mine sites. Phoenix Coal Company recently performed a large scale watershed flooding analysis on Island Creek which may also be utilized in the EIS. **Contact: Donald Stump, OSM, ARCC (tel. 412 937-2164)**

Fill Hydrology: The U.S. Geological Survey (USGS) has proposed a field study of the hydrologic effects of valley fills on surface water by installing rainfall gauges in filled watersheds and stream gauges below the fills. Similar gauging will be installed in an undisturbed watershed for reference purposes. The results of the USGS study will complement the COE flooding study modeling and the stream study efforts. USGS has also proposed to evaluate 60 watersheds (20 with large fills, 20 with small fills, and 20 with no fills) to assess stream geomorphology by taking stream bottom substrate samples for particle size evaluation. **Contact: Dr. Bernard Maynard, OSM, ARCC (tel. 812 937-2873)**

Streams: the impact of mining and fills on stream water quality and biologic diversity (focusing on benthic populations) is being assessed. A comparisons between mined and unmined watersheds is proposed. The team designed the effort based upon agency field work, and upon the collection of data from existing sources. Five watersheds in West Virginia have been selected for study: Spruce Fork, Clear Fork, Twenty Mile Creek, Island Creek, and the Mud River. Additional watersheds may be selected in Kentucky and/or Virginia. **Contact: William Hoffman, EPA, Region III (tel. 215 814-2995)**

Fisheries: a study to assess the effects of mountaintop mining/valley fill activities on downstream fish populations will be conducted by the Pennsylvania State University under an agreement with the U.S.

Fish and Wildlife Service. The findings will complement the stream chemistry and benthic studies undertaken pursuant to the Streams Work Plan. **Contact: Cindy Tibbott, FWS, Pennsylvania Field Office (tel. 814 234-4090)**

Wetlands: as part of the Landscape Ecology Work Plan, aerial photography will be acquired which will cover the mountaintop mining region, including each of the watersheds assessed in the Streams Work Plan. This aerial photography can be utilized to assess the extent and nature of wetland resources that typically exist in these watersheds, and the impacts of MTM/VF operations, through a paired watershed assessment approach. Using this approach, the extent to which wetland resources typically exist in unmined headwater basins will be evaluated and compared to similar basins where mined sites have been reclaimed. Field teams will perform functional assessments (water quality, wildlife, and sediment trapping) at the wetland areas identified on paired mined and unmined sites. To be successful, this work plan will require industry cooperation to survey sites, assess opportunities, and initiate pilot projects. **Contact: William Hoffman, EPA, Region III (tel. 215 814-2995)**

Aquatic Ecosystem Enhancement: This work plan will seek to bring the expertise of topnotch ecological and stream restoration experts to the subject of stream (or other aquatic area) re-creation on mine sites. To be successful, this work plan will require industry cooperation to survey sites, assess opportunities, and initiate pilot projects. **Contact: Gary Bryant, EPA Region III Wheeling Field Office (tel. 304 234-0230)**

Terrestrial Ecology: This work plan will evaluate vegetation and wildlife use of reclaimed mine sites compared to unmined habitats. Studies will focus on plant succession on reclaimed areas, soil health on mined sites, and effects of mountaintop mining/valley fill operations on herptiles, birds, and small mammals. **Contact: Cindy Tibbott, FWS, Pennsylvania Field Office (tel. 814 234-4090)**

Soil Quality and Forest Productivity: State and Federal regulations, policies, and practices; relevant literature; and soil conditions of existing reclaimed lands will be evaluated to assess the effectiveness of current reclamation practices on reclaimed forest lands. The study will incorporate discussions with State/Federal inspection, enforcement, and permit review personnel and Federal reclamation experts; reviews of permits, inspection reports, and other relevant documents; results of research reports; findings of university researchers; and, results of site investigations. The study will determine the adequacy of current reclamation techniques and recommend improvements where appropriate. **Contact: Dr. Milton Allen, OSM ARCC (tel. 412 937-2863)**

Socioeconomics: the impact of mountaintop mining/valley fill operations on the economy, community tax base, education, demographics, health care, cohesion, infrastructure, commerce, historic and cultural resources of the study area would be evaluated, as would factors associated with post-mining land uses. Study approaches by West Virginia University were conceptually endorsed by the team. **Contact: Diana Esher, EPA, Region III (tel. 215 814-2706)**

Mine Dust and Blasting Fumes: West Virginia University proposes to evaluate mine-generated dust

and blasting-generated fumes. Technical literature and relevant data focusing on the issues of dust generation and fume generation will be reviewed, analyzed, and compiled. A field testing protocol will be developed and all equipment needs for collecting dust samples and fume measurements identified and purchased. A field monitoring study will be conducted to collect dust and fume measurements from 1-2 mine sites. Field investigation data will be analyzed and a report will be prepared. **Contact: Ken Eltschlager, OSM, ARCC (tel. 812 937-2169)**

Landscape Ecology/Cumulative Effects: aerial photography/GIS modeling will be utilized to undertake thematic mapping of the study area. Land use changes, based upon the cumulative impact of future mining will be modeled on a watershed basis using specific environmental indicators, such as percent of headwater streams impacted, degree of forest fragmentation, etc. The study will be conducted by the Canaan Valley Institute, in cooperation with WVDEP. **Contact: John R. (Randy) Pomponio, Canaan Valley Institute (tel. 610 917-2138)**

Technical Workshops & Symposia

A series of technical workshops and symposia have been planned as another means of advancing the knowledge base. Two workshops have been held to date. The first was a 25-person, one-day invitational meeting organized by the U.S. Fish and Wildlife Service to discuss the value of headwater streams. Experts from both industry and academia were in attendance.

The second workshop, with over 110 attendees, addressed mining and reclamation technology issues, and was held on June 23-24 at the Department of Energy, Federal Energy Technology Center, in Morgantown, WV. The U.S. Office of Surface Mining led the team which prepared for this workshop, and a number of industry experts were invited to facilitate discussion. Proceedings will be written and made available on the EIS web site for both of these workshops. Symposia on stream restoration, reforestation, and other topics may also be proposed.

What to Look for in Bulletin 3

As announced in the *Federal Register* and discussed above, the major purpose of the EIS is to consider developing agency policies, guidance, and coordinated agency decision-making processes to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States and to fish and wildlife resources from mountaintop mining operations, and to environmental resources that could be affected by the size and location of fill material in valley fill sites. Toward this end, the agencies have scheduled a series of interagency meetings to examine the agency policies, guidance, and decision-making processes relative to mountaintop mining and valley fill activities. Improvements that promote greater protection for, and/or mitigation of impacts to environmental resources will be developed for public input, and a public meeting will be held (tentatively, in early November). Bulletin 3 will address the progress made to date on this aspect of the EIS.